

HABITS OF THE CHESTNUT-WINGED CHACHALACA

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THE Chestnut-winged Chachalaca (*Ortalis garrula*) is a slender, long-tailed bird about 22 inches in length. In both sexes, the head and neck are dark gray. The upper parts of the body are grayish brown. The tail is darker brown, broadly tipped, especially on the outer feathers, with buffy gray. The wings, grayish brown when folded, show large areas of deep chestnut when spread in flight. The chest is grayish brown and the more posterior underparts are more buffy. The short, thick bill is pale bluish horn-color, becoming darker basally. Each yellowish brown eye is surrounded by a ring of naked, slate-colored skin. The bare skin of the cheeks and throat is red. The legs and toes are gray.

This representative of the guan family (Cracidae) of tropical America ranges from eastern Nicaragua to Colombia. In Costa Rica it occurs on both coasts and up to an altitude of about 5,000 feet (Carriker, 1910. *Ann. Carnegie Mus.*, 6:384), although I have not myself met it so high. In the Térraba Valley, where the following observations were made, it is common between 2,000 and 3,000 feet above sea level. Here the chachalacas dwell chiefly in older second-growth vegetation, where there are some fairly tall trees, too scattered to form a closed canopy, standing above dense, vine-laden lower growth. I have never seen them within heavy primary forest, and although they sometimes forage in shady pastures and plantations, they rarely venture far from the sheltering thickets.

Throughout the year, these chachalacas live in small flocks, which usually consist of about six to a dozen birds, so scattered that it is difficult to ascertain their exact number. When traveling, they straggle one behind another, much in the manner of toucans, rather than move in compact flocks like parrots. They rarely descend to the ground but spend most of their time in bushes and trees, where they walk with ease and grace along thin limbs. How elegantly slender the long-tailed birds appear as they rest, two or three together, on a high bough, silhouetted against the sky in statuesque immobility! When flying downward, they often set their spread wings, revealing the rich chestnut of the plumes, and glide for considerable distances. On an upward course, they rarely fly far, but ascend by means of short flights from branch to branch.

FOOD

Chestnut-winged Chachalacas subsist largely on leaves and fruits which they gather from trees and shrubs. I have watched them eating the foliage of the tuete (*Vernonia patens*), a tall composite shrub which in the dry season

displays broad panicles of white flower heads. At times they swallow whole leaves, but more often they peck away pieces of leaves still attached to the bush. Another species of the Compositae on which they browse is the yellow-flowered shrub, *Oyedaea verbesinoides*. Leaf-eating seems to be rather widespread in the guan family. Once I watched three Crested Guans (*Penelope purpurascens*) spend half an hour stuffing themselves with the tender young foliage of a vine that had climbed over a tall dead tree at the forest's edge.

Of fruits, I have seen the chachalacas eat the hard, green, oily, olivelike drupes of the aceituno (*Simaruba glauca*), and the small black berries of *Hamelia patens*, a red-flowered shrub of the madder family. Formerly they came into our dooryard to feast on fragrant guavas (*Psidium guajava*), eating fruits which still hung in the treetops rather than those on the ground. In the dry season, they share with a great variety of smaller birds the fingerlike, green, fruiting spikes of the spindly guarumo trees (*Cecropia* spp.). When pokeweed (*Phytolacca rivinoides*) grows rankly on a recently burned clearing in the forest from which maize has been harvested, the chachalacas descend into the dense low growth to gather the small, juicy, black berries, then fly up into the trees on the edge of the clearing to rest and preen in the sunshine.

In the dry season, the chachalacas descend in straggling flocks in the morning and again in the evening to drink from the nearest river. They walk along the branches which stretch far out over the channel and stand on the boulders that rise above the rushing current. At times they seem to find something to eat on these rocks and in the patches of gravel and sand exposed between them when the water is low, but I have not learned what attracts them in these places. Their thirst quenched, they return to the second-growth thickets where they feel safer. In the wet season, they seem to find enough water without visiting the larger streams.

VOICE

One who attempts to describe the utterances of the Chestnut-winged Chachalaca wishes that at least one of them were as easily paraphrased as the stentorian *cha-cha-lac* of its northern relative, *Ortalis vetula*. But these birds have no comparable note, nor do they engage in bouts of calling in which many individuals over a wide area participate, the vocal outbursts surging back and forth perhaps for miles, in the dramatic fashion of the northern Chachalaca. Hence, the chestnut-winged species bears the name "chachalaca," not in its own right, but on the strength of its close affinity to its more plainly colored congener.

The Chestnut-winged Chachalaca is a noisy bird with a variety of utterances, most of which are difficult to characterize. Frequently it delivers loud, rather

high notes which seem like a surprised complaint, disappointing to one who expects to hear a vigorous challenge similar to that of the northern species. Sometimes this chachalaca gives high-pitched, long-drawn squeals that sound like *ooooee*. Or it may repeat a high, soft *white white white white*. A flock of chachalacas resting and preening in the sunshine after their morning meal mingled loud, harsh notes with others that were soft and low, including a sort of purr or rattle such as a domestic hen makes when she settles down to brood her chicks. Heard in the distance, the calls of this chachalaca have sometimes reminded me of the notes of the domesticated Guinea Fowl.

NEST AND EGGS

In the valley of El General, I have seen nests of the Chestnut-winged Chachalaca only from February to May; but its breeding season is probably longer than this, for I have seen half-grown birds at the end of January. The five nests that I have examined were situated in vine-draped bushes and small trees, or else in the midst of a tangle of creepers, in or beside the dense thickets which these birds frequent. In height these nests ranged from 38 inches to eight feet above the ground; three of them were between 4½ and six feet up. The nests were shaped like broad, shallow saucers, from nine to 12 inches in diameter, and were substantially made with a variety of coarse materials. A nest suspended in a tangle of vines was composed chiefly of slender lengths of vine. Another nest was made of coarse sticks, pieces of vine, inflorescences, and, principally, leaves. Many of the leaves had apparently been plucked and placed in the nest while green, and in drying, they had matted compactly together. The largest sticks were 13 inches in length and as thick as a lead pencil.

The lowest nest was composed chiefly of leafy grass stems, which seem to have been gathered while green. The builder had also twisted into her structure the tops of some long, slender grasses that grew beneath it, and these remained alive and green. The most exposed of the nests that I have seen was in a grassy opening amid tall thickets. Here stood a small, dying tree, the lower part of which was draped with a tangle of tall calinguero or molasses grass (*Melinis minutiflora*), which supported the nest 55 inches above the ground. The broad, shallow bowl was composed largely of the thin stems of this grass, compacted into a thick mat. It is evident that the chachalaca builds its nest with whatever suitable material is most easily available, and that it often uses green vegetation.

My earliest date for eggs is 7 February 1956, when I found a set of three that had evidently been newly laid. I have records of three sets of three eggs and of two sets of two eggs, but the smaller sets may have been incomplete, as they were in areas that had been disturbed by agricultural operations, in

at least one case while laying was in progress. The eggs are dull white, with a rough shell that is often heavily pitted. The depressions in the surface of the shell vary in size and density even in eggs of the same set; they may be small, deep, and crowded, or larger and more scattered. Large and small pits are mixed together on some eggs, and I have seen sets without pits visible to the naked eye. One egg was sprinkled all over with embossed flecks of pure white, which varied in size from mere dots to flakes five millimeters in diameter and appeared to be composed of nearly pure lime. The second egg of the same set bore scarcely any of these flecks, but it was far more densely pitted than the first egg. Even when devoid of visible pits and flakes, the shells are rougher than those of any other kind of egg that I know. Often the chachalaca's eggs, like those of anis, are heavily stained by the green vegetation on which they rest. The measurements of 10 eggs average 58.2 by 40.3 millimeters. Those showing the four extremes measured 61.9 by 40.5, 59.5 by 42.5, and 55.6 by 38.1 millimeters. The eggs in a set of three found at Eden, Nicaragua, on 27 May were considerably smaller than those from El General, measuring 50.4 by 36.8, 51.5 by 36.6, and 52.0 by 37.7 millimeters (Huber, 1932. *Proc. Acad. Nat. Sci. Phila.*, 84:207).

INCUBATION

On 11 March 1946, we found a nest 5 feet above the ground in a tangle of vines at the edge of a thicket, beside a bushy pasture. The bird who incubated the three eggs was not especially shy and sometimes would permit me to approach within 10 or 12 feet before she slipped from the nest and disappeared into the mass of bushes and creepers behind it. In a blind set in the neighboring pasture, about 30 feet from the nest, I began to watch by moonlight on 21 March. The light of dawn revealed the chachalaca sitting with her tail toward me. When the beams of the rising sun fell on her, she turned to face it. Soon she panted, her red throat distended and conspicuous. She preened. At 7:31 AM she left the nest, and after an absence of an hour and 14 minutes she returned at 8:45, approaching inconspicuously through the dense vegetation behind it, silent and alone. For the remainder of the morning she sat constantly, often panting with her neck stretched up. She was extremely sensitive to heat, and toward noon she continued to pant although she was now in the shade. At 12:30 PM I left the blind.

On the following day, I again entered the blind by moonlight. Around sunrise, a flock of about six chachalacas passed twice through the neighboring trees, calling softly. The bird on the nest seemed indifferent to these intruders, whose presence suggested that pairs of chachalacas do not defend territories: perhaps these birds are polygamous. At 6:59, after the flock had passed, the incubating bird left her eggs for a recess of an hour and two minutes.

At 8:01 she returned as on the preceding morning, silently and alone. After she was well settled on her eggs, I left, to reenter the blind at midday, when it was cloudy and hot. The chachalaca sat steadily until 4:20 PM, and after she left I examined her eggs. Placing them against my ear, I heard active tapping in two of them, peeping in the third; but none of the shells was yet fractured. This time the parent stayed away for one hour and 17 minutes, returning at 5:37, again without an escort. As the sun set, a Chestnut-mandibled Toucan (*Ramphastos swainsoni*) sang in the top of a cecropia tree behind the nest, then chased a chachalaca from the treetop. At 6:00 I left the parent on the nest in the failing light.

I saw nothing to suggest that more than one bird, probably the female, participated in incubation. She took two recesses in the course of the day, one after sunrise and the other in the late afternoon, and the three outings which I timed lasted from 62 to 77 minutes.

On 7 February 1956, I found a nest with three eggs, slightly stained by the leaves on which they rested. The attendant of this nest, which was only 6 feet high, would sit impassive on her eggs while I stood watching her a few yards away. On the afternoon of 23 February, she was still incubating. On the following afternoon, she was absent and only three empty shells remained in the nest. The manner of their fracture left no doubt that they had hatched, after 22 or more days of incubation. In the northern Chachalaca, the incubation period is 22 to 24 days (Kendeigh, 1952. *Ill. Biol. Monographs*, 22:194).

THE YOUNG

At 6:00 AM on 23 March, I resumed my watch at the chachalaca's nest where I had heard the chicks hammering in the eggs on the preceding afternoon. For the next hour and a half, the parent continued to sit quietly, then she became restless, moving around on the nest and repeatedly rising up to look beneath herself. At 7:48 she picked up a piece of empty shell and moved it to the side of the nest. At 8:50 I first glimpsed a downy chick in front of her breast, and I heard soft *peep*'s. At 9:45 two chicks emerged in front of the hen, and ten minutes later I saw three chicks, whose down was already dry and fluffy. Soon the chachalaca turned in the nest to face away from the sun. Now she sat very high, with her wings raised and one of them crossing her rump. She panted in the hot sunshine. When a chick emerged in front of her, she gently billed its head. By 11:00 the chicks were often venturing forth from beneath their mother to move around beside her, panting as she did. She often billed them.

At 11:10 the parent left the nest to eat the berries from some bushes of *Hamelia patens* a few yards away. She plucked both black ripe berries and red unripe ones, sometimes hanging head downward to reach them. The

chicks peeped softly while she left them exposed. After an absence of four minutes, she returned to the nest, her bare red throat distended with berries. She moved a red berry forward to the tip of her bill and held it there for several seconds while she mashed it, then took it back into her throat. She did this again and again. Her chicks moved around in front of her and sometimes pecked at the berry in the tip of her bill, but, as far as I could see, they did not eat. Five minutes after her return, the mother seemed to swallow all the berries, emptying her throat. Then she panted.

Presently a chick climbed to a slender dead vine about an inch above the nest's rim and perched there, but it had difficulty in keeping its balance and in less than a minute it returned to the nest. At 12:52 PM the mother again left the nest and ate more berries of *Hamelia* in the same place and manner as before. In five minutes she returned to the nest with her throat swollen with berries and moved one to the tip of her bill. A chick reached up and appeared to take and eat the berry. The mother swallowed the remainder. (These observations were made through eight-power binoculars from the blind 30 feet away.)

At 1:10 the parent left the nest and slowly climbed down through the tangled vegetation to the ground—a mode of departure which I had not previously witnessed. I looked in vain for the chicks to follow her. Ten minutes later, I emerged from the blind to remove a length of vine which had slipped down in front of the nest and obstructed my view of it. As I approached the nest, I found the chachalaca on the ground a few yards beyond it. She walked away slowly, calling softly. Without going near enough to the nest to see whether the chicks were still within it, I quickly returned to the blind and continued to watch. But when nearly an hour had slipped by without another glimpse of a chick, I went up to the nest to investigate. I found two empty shells in it and one on the ground beneath, but the chicks had vanished. Evidently they had left the nest along with their mother when she descended to the ground at 1:10 PM. Since I had not seen them leave, I cannot tell whether they jumped down, or climbed down through the tangled vegetation, or perhaps were carried down clinging to some part of her body. I am certain that she did not carry them down in her bill.

It was exasperating not to have seen the details of the chicks' departure after such long watching. At least I had learned that the chicks left the nest considerably less than 20 hours after their emergence from the egg (the shells had not even been fractured at 4:20 PM on the preceding day), and that their mother led them away over the ground. How the chicks reach the ground is the point that remains to be elucidated. The other parent did not come to assist at this important occasion, a fact which strengthens my conclusion that only one parent had attended the eggs. At a nest of the Marbled Wood-quail

(*Odontophorus gujanensis*), the male came to help lead off the newly hatched chicks, although only the female had incubated (Skutch, 1947. *Condor*, 49: 227-229).

On the evening after the departure of the three chachalaca chicks, I watched to see whether they would return to their nest to be brooded, but neither parent nor chicks came near it. Whether the latter are brooded on the ground, or carried up into a tree or bush for the night, as is said to be true of the northern Chachalaca, I do not know.

After her chicks can move around, the parent rejoins her flock with them. At first she seems to lead them over the ground, although ordinarily chachalacas forage chiefly in bushes and trees. While passing through second-growth woods on 17 April 1943, I found a chachalaca walking over the ground, followed by several young chicks, who vanished before I could see them well. A number of grown chachalacas were among the neighboring trees and bushes.

Long before they are full-grown, the young chachalacas take to the boughs and vines along with their elders. In April of an earlier year, a flock of chachalacas frequented my dooryard to eat guavas. One morning they were accompanied by three young, about the size of a Black-faced Antthrush (*Formicarius analis*). While the adults were in the guava trees, the young birds stayed in the neighboring hedge, where they walked dextrously along slender branches, repeating rapidly a sharp, clear *pip pip pip*. The young are fed by their parents over a considerable interval. On 31 January 1937, I watched a half-grown chachalaca perch close beside an adult in a tuete bush, while the latter plucked pieces of leaf and passed them to the youngster. Later, the half-grown bird foraged for itself.

Of the five chachalacas' nests that I have seen, two produced three chicks each and two were abandoned when the surrounding vegetation was cleared away to plant maize. The fifth nest was invaded by termites, which deposited a good deal of clay on the three eggs. The parent continued to incubate even after her eggs were heavily encrusted with clay, but after a few more days they vanished.

SUMMARY

Chestnut-winged Chachalacas live, in straggling flocks of about six to 12 birds, in the dense second-growth of the humid tropics. They prefer vegetation in which scattered tall trees stand above impenetrable, vine-entangled lower growth. They walk with ease along slender boughs. They fly downward with long glides but they generally ascend by short flights from branch to branch.

Chachalacas forage chiefly above the ground and subsist principally on green leaves, especially those of certain shrubs of the composite family, and a variety of berries and larger fruits. In the dry season, they descend in the morning and evening to drink at the nearest river.

These chachalacas utter a variety of notes that are difficult to paraphrase. They lack a strong, distinctive utterance and a communal vocal performance similar to that of *Ortalis vetula*.

In southern Costa Rica, nests were found from February to May, but the breeding season is evidently longer than this. Nests are situated in vine-draped bushes and small trees or in the midst of a tangle of creepers, at heights ranging (in five cases) from 38 inches to 8 feet. The broad, shallow saucers, from 9 to 12 inches in diameter, are substantially made of a variety of coarse materials, including sticks, pieces of vine, grass, and leaves. The nest often includes green vegetation which stains the eggs.

The set consists of three or, less often, two eggs. The dull white shell is often deeply pitted and sometimes it bears embossed flecks of pure white. Even in the same set, the eggs vary greatly in these features, but all are rougher than most birds' eggs.

Incubation is performed by a single parent, evidently the female, who takes two recesses each day, one in the early morning and the other in the late afternoon. Three absences ranged from 62 to 77 minutes in length. The incubation period is 22 or more days.

A few hours after they hatch, the downy young can perch, at least briefly. A parent with newly hatched chicks filled her throat with berries and, after mashing one in her bill, presented it to them between the tips of her mandibles. Soon after the chicks were dry, the parent led them away over the ground. The manner of their descent escaped me; they were not carried down in the adult's bill. Only one parent was seen to take an interest in the nest.

The parent with chicks rejoins her flock, and at first she may lead her brood over the ground while her companions move through the trees and shrubs above her. Long before they are full-grown, the young also travel through the trees and bushes. They receive at least some of their food from the parent's bill until they are about half-grown.

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